

CLAIMS

We claim:

- 5 1. A method comprising:
- (a) receiving a request to establish a circuit-data session between a user terminal and
a specified destination; and
- (b) responsively setting up a packet-data session between the user terminal and a
translation node, wherein the translation node is programmed to set up a circuit-data session with
10 the specified destination and to bridge the packet-data session with the circuit-data session.
2. A method comprising:
- (a) receiving a request to establish a circuit-data session between a user terminal and
a specified destination;
- (b) responsively (i) setting up a packet-data session between the user terminal and a
translation node, (ii) setting up a circuit-data session between the translation node and the
specified destination, and (iii) bridging the packet-data session with the circuit-data session,
wherein the translation node is one of multiple translation nodes disposed throughout a
packet-switched network, the method further comprising selecting the translation node from the
multiple translation nodes based on the specified destination.
3. The method of claim 2, wherein setting up a packet-data session between the user
terminal and the translation node comprises (i) setting up a first packet-data session between the
user terminal and a local gateway, (ii) setting up a second packet-data session between the local
25 gateway and the translation node, and (iii) bridging together the first packet-data session and the
second-packet data session, whereby packets then flow between the user terminal and the
translation node via the local gateway.
4. The method of claim 2, wherein selecting the translation node from the multiple
30 translation nodes based on the specified destination comprises selecting the translation node from

the multiple translation nodes based on proximity of the specified destination to the translation node.

5. The method of claim 2, wherein selecting the translation node from the multiple translation nodes based on the specified destination comprises referencing translation data that correlates the translation node with the specified destination.

6. The method of claim 2, wherein receiving the request comprises receiving the request at the user terminal.

7. The method of claim 6, wherein the request defines a telephone number of the specified destination, the method further comprising:

communicating the telephone number to the translation node,
wherein, setting up the circuit-data session between the translation node and the specified destination comprises the translation node placing a circuit-switched call to the telephone number.

8. The method of claim 7, wherein the request further defines user-account information, the method further comprising:

communicating the user-account information to the translation node;
communicating the user-account information from the translation node to the specified destination.

9. The method of claim 2, wherein the user terminal comprises a mobile station, and the specified destination comprises a dial-up server.

10. The method of claim 2, wherein setting up the packet-data session between the user terminal and the translation node comprises setting up the packet-data session over a communication path comprising an air interface.

11. The method of claim 10, wherein setting up the packet-data session between the user terminal and the translation node comprises the user terminal sending an origination message over the air interface to a radio access system, the origination message including a packet-data service code.

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12. The method of claim 1, wherein receiving the request comprises receiving the request from a user, the method further comprising:
performing step (b) transparently to the user.

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13. A method comprising:

(a) receiving a request to establish a circuit-data session between a user terminal and a specified destination;

(b) responsively (i) setting up a packet-data session between the user terminal and a translation node, (ii) setting up a circuit-data session between the translation node and the specified destination, and (iii) bridging the packet-data session with the circuit-data session,

wherein setting up the packet-data session between the user terminal and the translation node comprises (i) setting up a first packet-data session between the user terminal and a local gateway, (ii) setting up a second packet-data session between the local gateway and the translation node, and (iii) bridging the first packet-data session with the second packet-data session, whereby packets then flow between the user terminal and the translation node via the local gateway.

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14. The method of claim 13, wherein the translation node is one of multiple translation nodes disposed throughout a packet-switched network, wherein the specified destination defines a destination network address, and wherein setting up the packet-data session between the user terminal and the translation node further comprises selecting translation node from among the multiple translation nodes, based on the destination network address.

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15. The method of claim 13, wherein the translation node defines a translation node network address, and wherein selecting the translation node from among the many translation

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nodes, based on the destination network address, comprises determining the translation node network address based on the destination network address.

16. The method of claim 15, wherein the destination network address comprises a PSTN telephone number, and wherein the translation node network address comprises an IP address.

17. The method of claim 15, wherein determining the translation node network address based on the destination network address comprises:

consulting a translation table that correlates PSTN telephone numbers with translation node network addresses.

18. The method of claim 15, wherein determining the translation node network address based on the destination network address comprises:

providing to a network server an indication of the destination network address; and

thereafter receiving from the network server an indication of the translation node network address.

19. The method of claim 18, wherein the network server comprises an Authentication, Authorization and Accounting server, wherein the destination network address comprises NPA-NXX information, and wherein providing the network server with an indication of the destination network address comprises providing the network server with the NPA-NXX information.

20. A method comprising:

receiving into a user terminal a request to establish a dial-up data session between the user terminal and a dial-up data server, the dial-up data session defining data to be communicated between the user terminal and the dial-up data server;

packetizing outgoing data at the user terminal, to produce outgoing packetized data;

transmitting the outgoing packetized data from the user terminal to a local gateway;

selecting a remote gateway based on proximity of the remote gateway to the dial-up data server;

transmitting the outgoing packetized data from the local gateway to the remote gateway;

placing a circuit-switched call from the remote gateway to the dial-up data server;

5 translating the outgoing packetized data into an outgoing dial-up data stream at the remote gateway; and

in the call, sending the outgoing dial-up data stream from the remote gateway to the dial-up data server.

10 21. The method of claim 20, wherein the outgoing packetized data comprises a sequence of packets and the dial-up data stream comprises a digital bit stream, and wherein translating the outgoing packetized data into an outgoing dial-up data stream comprises:

embedding the packets in the digital bit stream.

15 22. The method of claim 20, wherein the outgoing packetized data comprises a sequence of packets, each including a header and payload, wherein the dial-up data stream comprises a digital bit stream, and wherein translating the outgoing packetized data into an outgoing dial-up data stream comprises:

depacketizing the packets to uncover the payload of each packet; and

20 including the payload of the packets in the digital bit stream.

23. The method of claim 20, further comprising:

in the call, receiving an incoming dial-up data stream at the remote gateway from the dial-up data server;

25 packetizing the incoming dial-up data stream at the remote gateway, to produce incoming packetized data;

transmitting the incoming packetized data from the remote gateway to the local gateway and, in turn, to the user terminal; and

depaketizing the incoming packetized data at the user terminal.

24. The method of claim 23, wherein transmitting the incoming packetized data from the remote gateway to the local gateway and, in turn, to the user terminal comprises:
transmitting the incoming packetized data through a home agent of the user terminal.

5 25. The method of claim 20, wherein the request to establish a dial-up data session between the user terminal and a dial-up data server defines a telephone number of the dial-up data server, and wherein placing a circuit-switched call from the remote gateway to the dial-up data server comprises:

10 placing a circuit-switched call from the remote gateway to the telephone number of the dial-up data server.

26. The method of claim 25, further comprising:
sending the telephone number from the user terminal to the local gateway; and
sending the telephone number from the local gateway to the remote gateway.

27. The method of claim 26, further comprising establishing a Telnet session between the local gateway and the remote gateway, wherein sending the telephone number from the local gateway to the remote gateway comprises sending the telephone number as Telnet authentication information from the local gateway to the remote gateway.

28. The method of claim 20, wherein the request to establish a dial-up data session between the user terminal and a dial-up data server defines user-account information, the method further comprising:

25 sending the user-account information from the user terminal to the remote gateway; and
in the call, sending the user-account information from the remote gateway to the dial-up data server.

29. The method of claim 28, wherein the user-account information comprises a username and a password.

30. In a network of the type comprising an access link for communicatively coupling user terminals with an access node, wherein the access node provides connectivity with a plurality of destinations including packet-terminated destinations and circuit-terminated destinations, and wherein communications from a user terminal to a packet-terminated destination, when carried over the access link, are carried over the access link at a first service level, and communications from a user terminal to a circuit-terminated destination, when carried over the access link, are carried over the access link at a second service level different than the first service level, a method comprising:

receiving a user request to establish a communication session from a user terminal to a specified circuit-terminated destination; and

in response to the user request, (i) selecting an intermediate packet-terminated destination based on proximity of the intermediate packet-terminated destination to the circuit-terminated destination, (ii) setting up a first session from the user terminal to the intermediate packet-terminated destination via a communication path including the access link, so that the first session is carried over the access link at the first service level, (iii) setting up a second session from the intermediate packet-terminated destination to the specified circuit-terminated destination, and (iv) bridging the first session with the second session to produce an end-to-end session from the user terminal to the specified destination.

31. The method of claim 30, wherein the access link comprises an air interface.

32. The method of claim 30, wherein the user terminal comprises a mobile station and the access node comprises a base station.

33. The method of claim 32, wherein the user terminal further comprises a host device linked with the mobile station.

34. The method of claim 30, wherein the first service level comprises a first data rate for communication over the access link, and the second service level comprises a second data

rate for communication over the access link, the first data rate being higher than the second data rate.

35. The method of claim 30, wherein the user request to establish a communication session from a user terminal to the specified circuit-terminated destination comprises a request to establish a dial-up data connection from the user terminal to a telephone number of the specified circuit-terminated destination.

36. The method of claim 35, further comprising receiving the user request at the user terminal.

37. A system comprising:

a mobile user terminal programmed to respond to a request to establish a dial-up data session with a designated endpoint by instead initiating a first packet-data session with a packet gateway, wherein the packet gateway passes packet-data between the mobile user terminal and a local server;

the local server being programmed to query an authentication server to identify a remote server that serves the designated endpoint, and the local server being further programmed to then establish a second packet-data session with the remote server, wherein the local server passes the packet-data between the gateway and the remote server; and

the remote server being programmed to initiate a circuit-data session with the designated endpoint, to translate the packet-data into circuit-data, and to send the circuit-data to the designated endpoint in the circuit-data session.